

Flexus X Instance

Service Overview

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1 What Is Flexus X Instance?

Huawei Cloud Flexus is a next-generation out-of-the-box cloud service family designed for small- and medium-sized enterprises (SMEs) and developers. Flexus X Instance (FlexusX) is a product in the Huawei Cloud Flexus family.

FlexusX is a next-generation flexible cloud server service designed for SMEs and developers. It provides application-defined cloud servers with intelligent awareness of service workloads. It is a good choice for moderate and light workloads, such as e-commerce livestreaming, enterprise website setup, development and testing environments, game servers, and audio and video services. Compared with the Flexus L Instance (FlexusL), FlexusX offers support for various public images, allows custom vCPU to memory ratios, supports dynamic specifications changes based on intelligently detected service changes, and accommodates a higher load range.

Application Scenarios

- E-commerce livestreaming: building e-commerce transaction platforms on FlexusX instances to handle spikes and lulls in the e-commerce market
- Enterprise website setup: helping enterprises set up platforms such as blogs, forums, and websites to communicate and spread information
- Individual development and testing: building development and testing environments on FlexusX instances easily and cost-effectively
- Game servers: creating game servers with robust computing power using FlexusX instances to support 1,000+ players online at the same time, smooth scaling to handle the sudden increase of online players, and strong network acceleration capability to improve user experience.

Advantages

- A variety of public images and versions are provided for you to choose from.
- Service changes can be intelligently detected and specifications can be dynamically adjusted, allowing for a higher workload range.
- vCPU and memory specifications can be flexibly customized.
- FlexusX instances support the flexible pay-per-user billing mode and provide intelligent recommendations for instance specifications.

Resource Configuration

FlexusX instances work with other cloud services to provide compute, image, network, storage, and security resources. You can flexibly configure resources as needed.

Service	Description
Image Management Service (IMS)	IMS provides public, private, and shared images for you to quickly install OSs on FlexusX instances.
Elastic Volume Service (EVS)	EVS provides storage space for FlexusX instances, and EVS disk snapshots can be used for data backup and restoration.
Virtual Private Cloud (VPC)	VPC helps you build your own dedicated network on the cloud. You can set subnets and security groups within your VPC for further isolation.
Elastic IP (EIP)	EIPs enables FlexusX instances to connect to external networks.
Cloud Backup and Recovery (CBR)	CBR backs up data for FlexusX instances and EVS disks and supports restoring data of servers and disks using backups.
Cloud Eye	Cloud Eye monitors resource usage of FlexusX instances and allows you to view the running status of resources.
Host Security Service (HSS)	HSS detects risks in FlexusX instances in real time to reduce the risk of intrusion.

Billing Modes

FlexusX instances support the yearly/monthly and pay-per-use billing modes to meet your requirements in different scenarios. You can change the billing mode from yearly/monthly to pay-per-use, and vice versa. For more information, see [Billing](#).

Differences Between FlexusX, FlexusL, and ECS

- A FlexusL instance is a package of resources that include cloud servers, EVS disks, EIPs, CBR vaults, and HSS. Resources in the package are created and managed together. FlexusL instances provide various featured application images to help you quickly set up service environments. FlexusL instances are easy to use and friendly to beginners in cloud computing.
- FlexusX is a next-generation flexible cloud server service designed for small- and medium-sized enterprises (SMEs) and developers. FlexusX provides

functions similar to what ECS provides. It also supports flexible vCPU/memory ratios. Compared with FlexusL, FlexusX offers more public images and more flexible specifications, and can bear higher workloads.

- An ECS instance is a server that supports high-load scenarios. It provides multiple billing modes, flavor types, image types, and disk types. You can customize ECS configurations for different service scenarios.

 **NOTE**

- FlexusX instances use the same underlying hardware resources as ECS instances and deliver the same compute performance as ECS instances with the same specifications.
- For high-load applications, you are advised to enable the **performance mode** for more stable performance.

For more information the differences between them, see [What Are the Differences Between FlexusL, FlexusX, and ECS?](#)

Access Methods

You can access FlexusX instances using a web-based management console.

If you have already signed up for Huawei Cloud, log in to the management console, choose **Compute > Huawei Cloud Flexus** from the service list, and click **Flexus X Instance** to access the FlexusX console.

If you have not signed up for Huawei Cloud, see [Registering a HUAWEI ID and Enabling Huawei Cloud Services](#).

2 Instance Specifications

You can learn about vCPUs/memory, images, EVS disks, VPCs, EIPs, Cloud Eye, and HSS resources of FlexusX instances.

vCPU and Memory

- Specifications Overview
 - vCPU/Memory ratio: flexible custom ratios to meet your specific needs with low-cost resources
 - vCPU/Memory ranges: 2 to 16 vCPUs and 2 to 128 GiB memory
 - Processor: 3rd Generation Intel® Xeon® Scalable Processor
 - Basic/Turbo frequency: 2.8 GHz/3.5 GHz

NOTE

- Flexus X instances use x86 and KVM.
 - The vCPU and memory specifications of FlexusX instances vary slightly in different regions. For details, see the specifications displayed on the console.
- Specifications Details

Table 1 lists the vCPU specifications of FlexusX instances.

Table 2-1 Specifications

vCPU	Assured/ Max. Intranet Bandwidth (Gbit/s)	Max. Intranet PPS (10,000)	Max. NIC Queues	Max. NICs	Max. Supplement ary NICs
2	0.2/2	30	2	2	8
4	0.4/3	50	2	2	16
6	0.6/4	60	2	2	24
8	0.8/6	80	2	2	32
12	1.2/8	90	4	3	48

vCPU	Assured/ Max. Intranet Bandwidth (Gbit/s)	Max. Intranet PPS (10,000)	Max. NIC Queues	Max. NICs	Max. Supplement ary NICs
16	1.6/12	100	4	3	64

NOTE

The intranet bandwidth and PPS of a FlexusX instance are determined by the instance specifications.

- Assured intranet bandwidth: the guaranteed bandwidth allocated to a FlexusX instance when there is a network bandwidth contention in the entire network
- Maximum intranet bandwidth: the maximum bandwidth that can be allocated to a FlexusX instance when the instance does not compete for network bandwidth (other instances on the host do not have high requirements for network bandwidth)
- Maximum intranet PPS: the maximum capability of FlexusX instances in sending and receiving packets. PPS stands for Packets per Second, indicating the number of packets sent per second. It is usually used to measure the network performance.
- Maximum NIC queues: allocates NIC interrupt requests to multiple vCPUs for higher PPS performance and bandwidth. For instructions about how to enable NIC multi-queue, see [Enabling NIC Multi-Queue](#).
- Maximum NICs: the maximum number of NICs that can be attached to a Flexus X instance. An NIC is an elastic network interface. For details, see [Elastic Network Interface](#).
- Maximum supplementary NICs: the maximum number of supplementary NICs that can be attached to a FlexusX instance. A supplementary NIC is a supplement to NICs. If the number of NICs that can be attached to your instance cannot meet your requirements, you can use supplementary NICs. For details, see [Supplementary Network Interface](#).

EVS Disk

EVS offers scalable block storage for FlexusX instances. With high reliability and performance, EVS disks can be used to meet service requirements in various application scenarios. For more information about EVS disk performance, see [Disk Types and Disk Performance](#).

System and data disks of FlexusX instances support the following EVS disk types: common I/O, high I/O, General Purpose SSD, ultra-high I/O, and General Purpose SSD V2. By default, a FlexusX instance has a system disk attached. You can configure the type and capacity of the system and data disks based on service requirements.

Network

FlexusX instances provide the following networking services:

- Virtual Private Cloud (VPC): allows you to create customized virtual networks in your logically isolated AZ. These networks are dedicated zones that are

logically isolated for your FlexusX instances. You can define security groups and IP address segments for a VPC. This facilitates internal network configuration, management, and change. You can also customize the cloud server access rules within a security group and between security groups to strengthen cloud server security protection.

- Elastic IP: consists of a public IP address and public network outbound bandwidth. After an EIP is bound to a FlexusX instance, the instance can directly access the Internet. FlexusX instances cannot access the Internet if they only have private IP addresses assigned.

Network Setting	Description	Billing Mode
VPC	<ul style="list-style-type: none">• You can customize the VPC for FlexusX instances.• In the same region of the same account, all FlexusX instances can communicate with each other over a private network only when they are in the same VPC.• FlexusX instances created by different accounts or in different regions are located in different VPCs. They cannot communicate with each other over a private network by default.• FlexusX instances in the same region can communicate with each other through VPC Peering Connection, and those in different regions can communicate with each other through Cloud Connect.	Free
EIP	<p>You can purchase an EIP during the instance creation or after the instance is created.</p> <ul style="list-style-type: none">• You can bind an EIP to or unbind an EIP from a FlexusX instance.• The EIP will not be retained after the FlexusX instance is released.• FlexusX instances support IPv6 addresses.	<ul style="list-style-type: none">• Yearly/Monthly and pay-per-use billing modes are supported.• EIPs can be billed by bandwidth, traffic, or shared bandwidth.• The bandwidth size can be changed.

Related Services

The FlexusX console integrates Cloud Eye, Host Security Service (HSS), and Cloud Backup and Recovery (CBR). You can purchase them together with FlexusX instances on the FlexusX console.

Service	Description
Cloud Eye	Cloud Eye is a multi-dimensional resource monitoring service. You can use Cloud Eye to monitor resource utilization and service running status, and generate alarms to notify you of service exceptions in a timely manner. For more information, see What Is Cloud Eye?
HSS	HSS improves the overall security of FlexusX instances. After HSS is enabled, it scans for weak passwords, system vulnerabilities, brute-force attacks, and unauthorized logins. For more information, see What Is HSS?
CBR	CBR enables you to back up FlexusX instances and disks with ease. In case of a virus attack, accidental deletion, or software or hardware fault, you can restore data to any point in the past when the data was backed up. For more information, see What Is CBR?

 **NOTE**

Whether Cloud Eye and HSS are displayed on the FlexusX console depends on the selected images. Certain public images do not support Cloud Eye or HSS.

3 Billing

This section describes the billing details of FlexusX instances. For more information, see [FlexusX Price Calculator](#).

Billing Modes

FlexusX instances support the yearly/monthly and pay-per-use billing. You can change the billing mode from yearly/monthly to pay-per-use, and vice versa.

- Yearly/Monthly is a prepaid billing mode. You pay in advance for a subscription term, and in exchange, you get a discounted rate. The longer the subscription term, the higher the discount. Yearly/Monthly billing is a good option for long-term, stable services.
- Pay-per-use is a postpaid billing mode. You pay as you go and just pay for what you use. FlexusX instances are calculated by the second but billed every hour. This mode allows you to adjust resource usage easily. You do not need to prepare resources in advance, and will not have excessive or insufficient preset resources. Pay-per-use billing is a good option for scenarios where there are sudden traffic bursts, such as e-commerce promotions.

Table 3-1 lists the differences between these billing modes.

Table 3-1 Differences between billing modes

Billing Mode	Yearly/Monthly	Pay-per-use
Payment	Prepaid Settled based on the subscription term you purchase	Postpaid Billed by the usage duration
Billing Method	Billed by the subscription term you purchase	Calculated by the second but billed every hour

Billing for Stopped Instances	Stopping an instance does not stop the billing. The billing stops after the subscription expires.	Basic resources (vCPUs, memory, and image) are not billed after the instance is stopped. Other resources (such as EVS disks, EIPs, and bandwidth) associated with the instance will continue to be billed.
Changing the Specifications	Supported	Supported
ICP Filing	Supported The subscription term must be at least three months, including all time covered by subscription renewals.	Not supported
Application Scenarios	Recommended for resources expected to be in use over the long term. Recommended for resources expected to be in use in the long term	Recommended when the resource demands are likely to fluctuate and you want more flexibility

Billing Items

Table 3-2 FlexusX instance billing items

Billing Item	Description	Billing Mode	Formula
*Instance	Computing and storage capabilities vary by the number of vCPUs and memory size. Billed by vCPU and memory	Yearly/ Monthly and pay-per-use	Unit price × Required duration The unit price of an instance is that displayed on the console.

Billing Item	Description	Billing Mode	Formula
*Image	<p>The billing modes of images are the same as those of instances.</p> <ul style="list-style-type: none">• Public images: provided by Huawei Cloud and free of charge• Private images:<ul style="list-style-type: none">– System disk images and data disk images can be used for free.– If a full-server image is created using Cloud Server Backup Service (CSBS) or Cloud Backup and Recovery (CBR), you will be billed for the storage and cross-region replication traffic on a pay-per-use basis. For details, see CBR Billing Items.– If a private image is created using a cloud server created from a KooGallery image, the image will be billed based on the KooGallery image pricing details.• Shared images: System disk images, data disk images, and full-server images shared by others are private images. They are billed based on the private image pricing details. Shared images are only shared within a given region, so they do not generate cross-region replication traffic costs.	Yearly/ Monthly and pay- per-use	<p>Unit price × Required duration</p> <p>The unit price of an image is that displayed on the purchase page and KooGallery.</p>
*EVS disk (system disk)	<p>When you purchase a FlexusX instance, a 40 GiB system disk is selected by default. You can select a higher capacity as required. Regardless of whether you use the disk, you will be billed right away after purchasing it.</p> <p>Billed by EVS disk type and capacity</p>	Yearly/ Monthly and pay- per-use	<p>Unit price × Required duration</p> <p>The unit price of an EVS disk is that displayed on the console.</p>

Billing Item	Description	Billing Mode	Formula
EVS disk (data disk)	If you have additional storage requirements, you need to purchase more data disks. Billed by EVS disk type and capacity	Yearly/ Monthly and pay-per-use	Unit price × Required duration The unit price of an EVS disk is that displayed on the console.
Bandwidth	An EIP is required if the FlexusX instance needs to access the Internet. Billed by bandwidth, traffic, and the EIP reservation price <ul style="list-style-type: none"> EIP for a yearly/monthly FlexusX instance: billed by bandwidth EIP for a pay-per-use FlexusX instance: billed by bandwidth, traffic, or shared bandwidth. You are also billed for EIP reservation if you do not bind the EIP to any instance. <p>NOTE If the EIP has been bound to a FlexusX instance, the EIP reservation price is 0.</p>	Yearly/ Monthly and pay-per-use	Tiered pricing based on fixed bandwidth <ul style="list-style-type: none"> 0 Mbit/s to 5 Mbit/s (included): billed at a fixed unit price per Mbit/s Greater than 5 Mbit/s: billed at a different price per Mbit/s The unit price of the EIP bandwidth is that displayed on the console.
HSS	You can enable HSS to protect your FlexusL instances. You can use the HSS basic edition for free for one month or the HSS enterprise edition at additional costs. For details, see HSS Pricing Details .	Yearly/ Monthly and pay-per-use	HSS unit price × Required duration The unit price of HSS is that displayed on the console.
CBR	You can purchase a backup vault to store backups of your FlexusX instance. You are billed based on the vault capacity. For details, see CBR Pricing Details .	Yearly/ Monthly and pay-per-use	Unit price × Required duration The unit price of CBR is that displayed on the console.

Expiration and Arrears

- Pay-per-use FlexusX instances are settled periodically. If you do not have a valid payment method configured or your account balance is insufficient, your account will fall into arrears.

- Yearly/Monthly FlexusX instances will expire after their validity periods end.

The following describes the impacts if your FlexusX instances expire or if your account is in arrears.

Phase	Impact
Grace period	After a FlexusX instance expires or your account is in arrears, the instance enters a grace period. During the grace period, you can still access and use the FlexusX instance.
Retention period	If you do not renew your FlexusX instance or pay off the arrears before the grace period expires, the instance enters a retention period. During the retention period, you cannot access or use the FlexusX instance, but it is still retained.

After a FlexusX instance enters a grace period or retention period, Huawei Cloud will notify you of this by email or text message. If you do not complete the renewal or payment before the retention period ends, your instance will be released. To avoid impact on your services, renew your subscription or top up your account in a timely manner.

Renewal and Top-up

FlexusX instances cannot be used after they expire or if your account is in arrears. If you want to continue using them, renew them before the **retention period** ends. Otherwise, your resources will be released and cannot be recovered.

NOTE

Pay-per-use is a postpaid billing mode. Pay-per-use FlexusX instances are automatically settled by the hour. You will need to make sure you have a top-up account with a sufficient balance or have a valid payment method configured first. Yearly/Monthly is a prepaid billing mode. To use yearly/monthly FlexusX instances, you also need to renew your subscription before they expire.

Unsubscription and Deletion

If you no longer need FlexusX instances, unsubscribe from or delete them to avoid unnecessary costs.

For details, see [Unsubscription Rules](#).

NOTE

For yearly/monthly FlexusX instances that are no longer used, unsubscribe from them. For pay-per-use FlexusX instances that are no longer used, delete them.

4 Notes and Constraints on Using FlexusX Instances

To ensure that your FlexusX instances run properly, read the following constraints and notes before using them.

Constraints

- Private images are regional resources. FlexusX instances only can use private images that are in the same region as them.
- FlexusX instances use the x86 architecture and do not support private images created using Arm servers.
- Only Windows KooGallery images are supported.
- FlexusX instances do not support nested virtualization.
- Do not install external hardware devices, such as encryption dongles or USB flash drives on FlexusX instances.

Notes

When using FlexusX instances, comply with the notes below.

General

- Do not use FlexusX instances as unauthorized servers for any illegal or violation service, such as gambling or cross-border VPN.
- Do not use FlexusX instances for fraudulent transactions, such as click farming on e-commerce websites.
- Do not use FlexusX instances to initiate network attacks, such as DDoS attacks, CC attacks, web attacks, brute force cracking, or spreading of viruses and Trojan horses.
- Do not use FlexusX instances for traffic transit.
- Do not use FlexusX instances for web crawling.
- Do not use FlexusX instances to detect other systems like scanning or penetration unless otherwise being authorized.
- Do not deploy any illegal websites or applications on FlexusX instances.

- Do not uninstall drivers from the hardware of FlexusX instances.
- Do not change the MAC address of NICs.
- The authentication mechanism of certain software may require that software licenses be associated with the physical server hosting FlexusX instances. Once a FlexusX instance is migrated from one physical server to another, the associated licenses may become invalid.
- A FlexusX instance may need to stop or restart when it is migrated from a faulty host. For high service availability, deploy applications in a cluster or on FlexusX instances working in active/standby mode, or configure automatic startup upon a host failure or startup.
- Back up data for FlexusX instances where core applications are deployed.
- Monitor application metrics on FlexusX instances.
- Do not change the default DNS server address. If you need to configure a public DNS server address, configure both a public and a private DNS address for your FlexusX instance.

Windows-specific

- Do not stop system processes if you are not sure about the consequences. Otherwise, blue screen of death (BSOD) or a restart may occur on FlexusX instances.
- Ensure that there is at least 2 GiB of idle memory. Otherwise, BSOD, freezing, or service failures may occur.
- Do not modify the registry. Otherwise, the system startup may fail. If the modification is mandatory, back up the registry before modifying it.
- Do not modify the clock settings. Otherwise, DHCP lease may fail, leading to the loss of IP addresses.
- Do not delete the CloudResetPwdAgent or CloudResetPwdUpdateAgent process. Otherwise, one-click password reset will become unavailable.
- Do not disable virtual memory. Otherwise, system performance may deteriorate, or system exceptions may occur.
- Do not delete the VMTools program, or an exception may occur on FlexusX instances.

Linux-specific

- Do not modify the **/etc/issue** file. Otherwise, the OS distribution will not be identified.
- Do not delete system directories or files. Otherwise, the system may fail to run or start.
- Do not change the permissions for or names of system directories. Otherwise, the system may fail to run or start.
- Do not upgrade the kernel of the Linux unless necessary.
When you have to upgrade the Linux kernel, follow the instructions provided in [How Can I Upgrade the Kernel of a Linux ECS?](#)
- Do not delete the CloudResetPwdAgent or CloudResetPwdUpdateAgent process. Otherwise, one-click password reset will become unavailable.
- Do not change the default **/etc/resolv.conf** of the DNS server. Otherwise, software sources and NTP may be unavailable.

- Do not modify default intranet configurations, such as the IP address, subnet mask, or gateway address of a FlexusX instance. Otherwise, network exceptions may occur.
- Manually specified IP addresses for Linux FlexusX instances are generally static IP addresses. To avoid network exceptions caused by conflicts between NetworkManager and internal network services, do not enable NetworkManager when not required, such as when installing Kubernetes.

5 Region and AZ

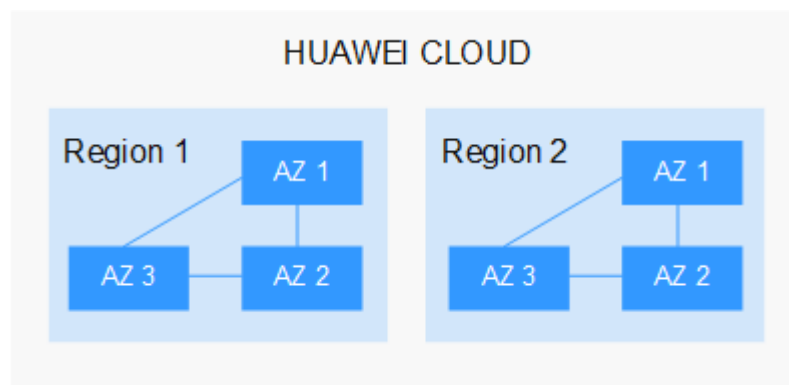
Concept

A region and availability zone (AZ) identify the location of a data center. You can create resources in a specific region and AZ.

- Regions are divided based on geographical location and network latency. Public services, such as Elastic Cloud Server (ECS), Elastic Volume Service (EVS), Object Storage Service (OBS), Virtual Private Cloud (VPC), Elastic IP (EIP), and Image Management Service (IMS), are shared within the same region. Regions are classified into universal regions and dedicated regions. A universal region provides universal cloud services for common tenants. A dedicated region provides specific services for specific tenants.
- An AZ contains one or more physical data centers. Each AZ has independent cooling, fire extinguishing, moisture-proof, and electricity facilities. Within an AZ, computing, network, storage, and other resources are logically divided into multiple clusters.

Figure 5-1 shows the relationship between regions and AZs.

Figure 5-1 Regions and AZs



Huawei Cloud provides services in many regions around the world. You can select a region and an AZ based on requirements. For more information, see [Huawei Cloud Global Regions](#).

Selecting a Region

When selecting a region, consider the following factors:

- Location

It is recommended that you select the closest region for lower network latency and quick access.

- If your target users are in Asia Pacific (excluding the Chinese mainland), select the **CN-Hong Kong**, **AP-Bangkok**, or **AP-Singapore** region.
- If your target users are in Africa, select the **AF-Johannesburg** region.
- If your target users are in Latin America, select the **LA-Santiago** region.

 **NOTE**

The **LA-Santiago** region is located in Chile.

- Resource price

Resource prices may vary in different regions. For details, see [Product Pricing Details](#).

Selecting an AZ

When deploying resources, consider your applications' requirements on disaster recovery (DR) and network latency.

- For high DR capability, deploy resources in different AZs within the same region.
- For lower network latency, deploy resources in the same AZ.

Regions and Endpoints

Before you use an API to call resources, specify its region and endpoint. For more details, see [Regions and Endpoints](#).